

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicants : WESTMIJZE *et al.*
Serial No. : 10/384,971
Filed : November 8, 2005
For : INCREASE POLYMERIZATION REACTOR OUTPUT BY USING A
SPECIFIC INITIATOR SYSTEM
Examiner : Richard A. Huhn
Art Unit : 1796

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Declaration Under 37 C.F.R. § 1.132

I, Andreas Petrus van Swieten , of Reinaldstraat 6, 6883 HM, Velp, The Netherlands,
declare as follows:

I. BACKGROUND

1. I am a named co-inventor of U.S. application Serial No. 10/553,971 ("the '971 application") filed November 8, 2005.
2. I received my PhD in Chemistry in 1980 at University of Leiden Netherlands. Since 1981, I have worked for AKZO NOBEL N.V. I am currently AKZO NOBEL's Manager Services & Facilities. In that position, I am responsible for Services and Facilities in the research organization in Arnhem and Deventer .



3. I have reviewed and understood the specification and the claims of U.S. patent application Serial No. 10/553,971 entitled "Increased Polymerization Reactor Output by Using a Specific Initiator System".

4. I am familiar with the prosecution of the '971 application and have reviewed and understood the Office Action mailed April 24, 2009 ("the Office Action"). The Office Action alleges inter alia that polymerization process for vinyl chloride as disclosed in U.S. Pat. No. 6,384,155 ("van Swieten *et al.*"), renders obvious the pending claims of the present application.

5. I have reviewed and understood U.S. Patent No. 6,384,155 issued on May 7, 2002, to van Swieten *et al.*, ("the '155 patent).

II. POLYMERIZATION PROCESS ACCORDING TO THE '155 PATENT

6. I have directly supervised the repetition of the polymerization process of vinyl chloride monomer according to Example F of the '155 patent, where an initial dose of a first initiator was used at the start of the heating process and a second initiator was added during the polymerization process. This repetition of the vinyl chloride monomer polymerization process is as follows.

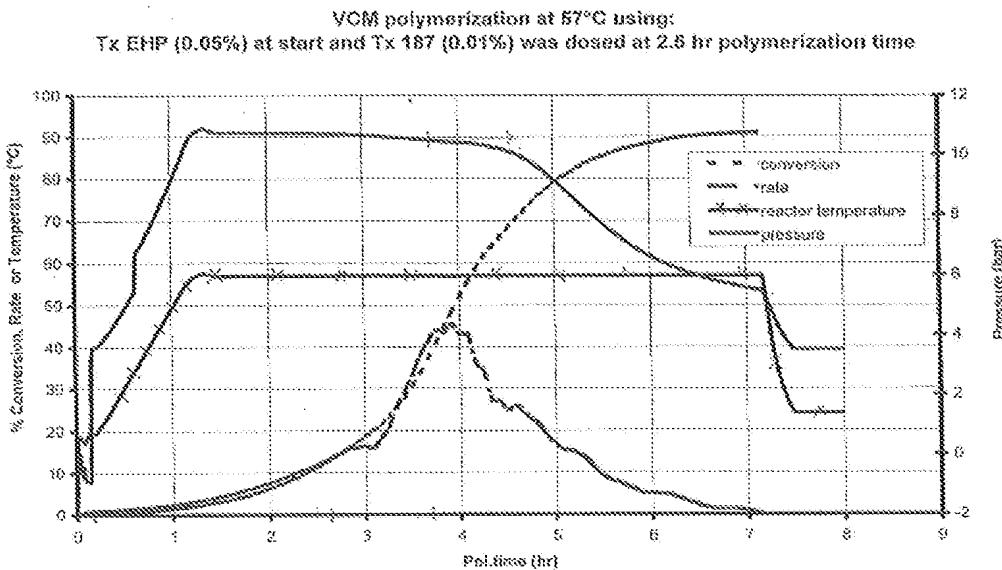
7. The repetition of Example F of the '155 patent was carried out as follows. A temperature controlled 5-liter stainless steel Büchi reactor provided with one baffle, a three-bladed stirrer, a pressure transducer, a VCM feed line, a nitrogen purge line, and a sampling line for taking samples from the gas phase, was charged with: 2600 g demineralized water, 1 g Na₂HPO₄ and 1 g NaH₂PO₄ buffer, and pressurized to 15 barg, using nitrogen. The reactor was subsequently evacuated and pressurized with nitrogen up to 5 barg three times to flush out virtually all air. 0.05% w/w di-2-ethylhexylperoxydicarbonate (TrigonoX EHP-C70), diluted with 100g isododecane, was added to the reactor and subsequently the reactor was evacuated and

charged with 675 g VCM and 3.4 g n-butane (first mixed with the VCM), followed by heating up of the reactor, so that the reaction mixture was at the polymerization temperature of 57°C after one hour. Ten minutes after starting the heating, a solution of 1.0125 g of Gohsenol KP-08 ex Nippon Gohsei in 100 g demineralized water was added to the reaction mixture. From this moment on the conversion was monitored by analyzing the gas phase of the reactor, as is known in the art. Two and a half hours (2.5 hours) after starting the heating 0.01% w/w Trigonox 187-C30, diluted in 100g isododecane, was added over a period of one hour. After a pressure drop in the reactor, the polymerization was continued for another half hour, and then the reactor was cooled to 20-25°C, evacuated and freed of virtually all remaining VCM. The polymer was obtained after filtration, washing, and drying (at 60°C for 1 hour using a fluidized bed).

III. ANALYSIS OF THE POLYMERIZATION PROCESS ACCORDING TO THE '155 PATENT

8. The conversion of the vinyl chloride monomer is monitored by analyzing the gas phase of the reactor. The pressure, reaction temperature, conversion rate and the percentage of conversion is then plotted against the polymerization time as shown in the Figure 1 below.

Figure 1: VCM polymerization at 57°C using Tx EHP (0.05%) at start and Tx 187 (0.01%) was dosed at 2.5 hr polymerization time.



The above figure shows that the second initiator is added after 12% of the monomer has been polymerized.

9. It is my opinion, that the second initiator in the polymerization process as disclosed in the '155 patent is not at least partially dosed at a point in time between the start of polymerization and 10% monomer polymerization. Thus, in my opinion, the polymerization process of the '971 application is a distinct process compared to the polymerization process according to the prior art '155 patent.

10. I declare that all statements made herein are true, and that all statements made herein on information and belief are believed to be true, and that all statements are made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment or both under Section 1001 of Title 18 of the United States Code, and that any

willful false statement may jeopardize the validity of any United States Patent that would issued from the '971 application.

Dated:

05/08/2003

Signed:

A.P. van Swieten

A.P. van Swieten